Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band	)	GN Docket No. 12-354
	)	
Petition for Rulemaking to Amend the Commission's Rules Regarding the Citizens Broadband Radio Service in the 3550-3700 MHz Band	)	RM-11788
	)	
Petition for Rulemaking to Maximize Deployment of 5G Technologies in the Citizens Broadband Radio Service	)	RM-11789
	)	

COMMENTS OF STARRY, INC.

Starry, Inc. (Starry)[1] submits these comments urging the Federal Communications Commission (FCC or Commission) to maintain and reaffirm the existing rules for the 3.5 GHz Citizens Broadband Radio Service (CBRS and/or 3.5 GHz band).[2] CBRS represents a substantial step forward in spectrum policy and spectrum management, and will drive investment and innovation from a diverse set of users and innovators, to the benefit of consumers and the U.S. economy.

In 2012, the Commission saw an opportunity to significantly increase the amount of mid-band spectrum (at the time it was considered high-band) by making up to 150 megahertz

[1] Starry, Inc., is a Boston- and New York-based technology company that is utilizing millimeter waves to re-imagine last-mile broadband access as an alternative to fixed wireline broadband. Starry is currently deploying its proprietary fixed 5G wireless technology in the Boston-area, with plans to expand to our presence to additional U.S. cities by the end of 2017.

[2] *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, WT Docket 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959 (2015) (*3.5 GHz R&O*); *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, WT Docket 12-354, Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016) (*3.5 GHz Order on Reconsideration*).

available for shared access.[3] To do this, the Commission had to solve several difficult problems, including how to share the spectrum with incumbent Federal users and Fixed Satellite Service (FSS) earth stations. The Commission relied on the state-of-the-art in spectrum policy, economic policy, and wireless and computing technology to develop an effective solution to maximize the utility of this spectrum while protecting these incumbents. Working collaboratively with the National Telecommunications and Information Administration and the Department of Defense the Commission developed a three-tiered sharing model that effectively protected Navy radars, made licenses available where and when they are needed based on local demand, and otherwise made the spectrum available with very low barriers to access. The result is a spectrum management framework that is designed to efficiently assign spectrum rights through market-based mechanisms, while protecting incumbents.

Since the rules were put in place over two years ago, there has been a substantial amount of investment in this band and access model from equipment vendors, WISPs, industrial users, the cable industry, wireless providers, and others.[4] This investment is driven by the potential for low-barrier access to a substantial amount of spectrum and is based on the existing structure, not based upon an expectation of future changes.

The Commission should reject the Petitions,[5] reaffirm the current rules, and expeditiously certify Spectrum Access System Administrators and Environmental Sensing Capability operators to enable use of the band as soon as possible.

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[3] *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, WT Docket 12-354, Notice of Proposed Rulemaking, 27 FCC Rcd 15594, 94-99 ¶¶ 1-13 (2012) (*3.5 GHz NPRM*).

[4] *See* Letter from All Points Broadband, American Tower Corp., Amplex Internet, Baicells Tech, Boingo, Engine, Google, Inc., High Speed Link, Microsoft Corp., NCTA – The Internet & Television Association, Republic Wireless, Rise Broadband, Skywerx Internet Services, Smart City, Telrad Networks, and the Wireless Internet Service Providers Association to Chairman Ajit Pai, Commissioner Mignon Clyburn, and Commissioner Michael O'Rielly, GN Docket No. 12-354 (filed June 1, 2017); Letter from Center for Rural Strategies, American Library Association, National Hispanic Media Coalition, R Street Institute, Next Century Cities, Schools, Health & Libraries Broadband Coalition, Open Technology Institute at New America, Public Knowledge, Engine, Common Cause, Institute for Local Self Reliance, Benton Foundation, Gigabit Libraries Network, X Lab to Chairman Ajit Pai, Commissioner Mignon Clyburn, and Commissioner Michael O'Rielly, GN Docket No. 12-354 (filed June 19, 2017); CBRS Alliance Ex Parte, GN Docket No. 12-354 (filed June 6, 2017); Alphabet Ex Parte, GN Docket No. 12-354 (filed May 11, 2017); Dynamic Spectrum Alliance Ex Parte, GN Docket No. 12-354 (filed July 17, 2017).

[5] CTIA, Petition for Rulemaking, GN Docket No. 12-354, RM-11788 (filed June 16, 2017); T-Mobile USA, Inc. Petition for Rulemaking, GN Docket No. 12-354, RM-11789 (filed June 19, 2017) (collectively "Petitions").

I. THE CURRENT RULES USE ECONOMIC- AND MARKET-BASED MECHANISMS TO EFFICIENTLY ASSIGN SPECTRUM RIGHTS

The current rule structure makes CBRS spectrum available on a local basis, and grants the right to exclude others only when rivalry for the spectrum exists.[6] The framework combines the weaker propagation characteristics of spectrum in the 3.5 GHz band (relative to low-band spectrum), local license areas, and small cell technical characteristics to target spectrum availability to the locations where and when it is needed. It's simple to understand and efficient.

It is axiomatic that the Commission should assign spectrum rights to those entities that are most likely to put the spectrum to use in the public interest.[7] But those might not be the same entities that place the highest price on spectrum, since firms frequently find value in spectrum that is unrelated to the use of the spectrum, including as an investment vehicle or to foreclose other potential users. Taking steps to alter the CBRS structure to assign spectrum rights in a less efficient manner – that is in places and at times where the right to exclude other users is unnecessary because there is not competition for the spectrum – would be inconsistent with the public interest and the Commission's mandate under the Telecommunications Act.[8]

Auctions are useful tools for assigning spectrum, but they can create artificial scarcity. The CBRS model improves upon an auction-only model of spectrum assignment in two key ways: 1) it assigns spectrum via auction largely only when there is competition for the spectrum (*i.e.* there is actual scarcity); and 2) it allows all users to access unused spectrum that has been auctioned, without harming the rights of a licensee, if one exists. The combination of targeted geographic areas and short license terms will force licensees to reconsider on a regular basis whether or not the license is worth the cost of acquiring it again at auction. If there continues to be rivalry for the spectrum and a licensee generates value from the license, then the licensee has an incentive to win it again at auction. If there is not rivalry, or if there is a shift in the licensee's network demand, then the licensee can simply operate on a General Authorized Access (GAA) basis. This is the right outcome from an economic perspective, from a policy perspective, and is entirely consistent with the Commission's mandate.

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[6] *See 3.5 GHz R&O*, 30 FCC Rcd at 3962, 3999-05 ¶¶ 5, 122-141.

[7] 47 U.S.C. §§ 301, 307, 309.

[8] *Id.*

To suggest that a former PAL licensee is stuck with "stranded investment" in the event it loses an auction ignores the fact that it can keep operating on a GAA basis.[9] The biggest differentiating right between a PAL and GAA use is that a PAL licensee can exclude other users from its 10-megahertz channel.[10] If a PAL licensee values that right, then it will sufficiently bid for it at auction. If a CBRS user does not value exclusivity and is comfortable with the shared environment, then it has access to the GAA portion of the band and the unused portion of PAL licenses, and does not have to pay for a right it does not desire. This is particularly important for users that do not have access to sufficient capital to successfully participate in an auction, including many WISPs and utilities.[11]

Finally, the Commission's intent was never to make this a band available solely for commercial mobile wireless services. The Commission *explicitly* established this band to support a "wide variety of users, deployment models, and business cases, including some solutions to market needs not adequately served by [its] conventional licensed or unlicensed rules."[12]

II. CHANGES TO THE CURRENT RULE STRUCTURE WILL UNDERMINE THE BENEFITS THAT IT CREATES

Petitioners' proposed changes would fundamentally undermine the sound structure the Commission already put in place, introduce economic inefficiencies, and inhibit the use of the band for uses other than commercial mobile wireless services.

First, licensing the band in large geographic areas eliminates the ability to target licensed access to spectrum where there is actual rivalrous demand, resulting in large swaths of the country under the control of licensees with no intention of using the spectrum in all areas. This is a small cell band, and small cell use is localized by design. It is therefore unnecessary and inefficient to grant license rights over a large license area – like a Partial Economic Area – where a significant portion of the geographic area will go unserved by the licensee.

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[9] *See 3.5 GHz Order on Reconsideration*, 31 FCC Rcd at 5022 ¶ 44.

[10] *Id.* at 5024 ¶ 53.

[11] *See, e.g.,* Comments of Baicells Technology North America, Inc, GN Docket No. 12-354, RM-11788, RM-11789 (filed July 20, 2017) (Baicells Comments); Comments of Alsat Wireless, GN Docket No. 12-354, RM-11788, RM-11789 (filed July 18, 2017) (Alsat Comments); Comments of REACH4 Communications, GN Docket No. 12-354, RM-11788, RM-11789 (filed July 18, 2017) (REACH4 Comments).

[12] *3.5 GHz R&O*, 30 FCC Rcd at 3962 ¶ 6.

Petitioners do not support their assertion that larger license areas are more likely to drive investment than the current structure. It might be the case that large license areas are necessary to stimulate investment in low-band spectrum that is designed for coverage and propagates over long distances. That is not the case here. CBRS is designed to provide spectrum access where and when its needed. Wireless providers will use sophisticated models to determine where in their networks they have the greatest need for additional capacity, and focus their CBRS deployments in those areas. It makes no sense for them to acquire vast geographic areas that they have no need, desire, or intention to serve.

Furthermore, simply because census tracts result in a relatively large number of licenses does not unreasonably complicate PAL auctions or PAL license administration. The FCC just successfully completed the world's first Incentive Auction, with an entirely new auction mechanism and IT system built from the ground up. The Commission clearly has the expertise and skills to construct an effective auction for PALs, the only unique characteristic of which will be the number of lots up for auction. For instance, it could make available a simple user interface that allows bidders to easily select multiple license areas in advance of the auction or a bidding round; it could create APIs to allow bidders to use custom software tools to submit their bids; or it could use the auction design itself (for instance, it could use package bidding). Finally, because this band lacks buildout requirements, there is no additional administrative burden on licensees from holding many licenses.

Second, extending license terms to 10 years will decrease investment and innovation in the band. An equipment ecosystem already exists, the SASs are in the second phase of approval, and 3GPP established a band class for the 3.5 GHz band in late 2016. There has been substantial investment and innovation in the band based upon the current rule structure. While providing a PAL licensee a 10-year term allows it to spread its investment over a longer term, Petitioners provide no evidence to demonstrate that the net total investment from any one or all PAL licensees will increase over that 10-year period relative to three consecutive license terms over shorter periods. Instead of incentivizing licensees to invest, long license terms incentivize them to wait. Longer license terms in CBRS, especially coupled with large license areas, will reduce the availability of spectrum for other uses, thus limiting the pool of companies that could invest in the band and minimizing overall investment. Finally, while shorter license terms might result in less auction revenue, the ability to operate on a GAA basis, even in the event that an

incumbent PAL licensee loses the license at auction, minimizes the risk (and disincentive) of stranded investment.

Third, renewing licenses without requiring the licensee to demonstrate that it is using the spectrum is inconsistent with the letter of the Telecommunications Act.[13] Short license terms in CBRS help force licensees to regularly consider whether or not they need or value the license – it becomes an ongoing expense rather than an asset. If a PAL licensee decides it does not need a license, another entity could win it at auction, or the channel could be returned to the GAA pool. This mechanism prevents warehousing by imposing a real cost on holding the spectrum in the form of bids to retain the license through multiple auctions, and the GAA tier ensures the spectrum is available to other users. Allowing licensees to renew 10-year licenses into perpetuity, and *with no buildout requirements*, serves no legitimate policy purpose. Spectrum licenses are a limited right to use a public resource, and the Commission has a statutory obligation to ensure licensees use that right to serve the public interest.[14]

In the event that the Commission does change the license term to 10 years, it must impose stringent buildout requirements that are tailored to the type of deployment; that limit a licensees' ability to use "license savers;" and must force licensees to forfeit those areas of its license that are not in use, or those licenses it hasn't constructed, consistent with the use-or-lose model in other bands.[15]

Finally, T-Mobile's requested changes amount to re-farming the band solely to support wide-area commercial wireless networks, which is inconsistent with the FCC's intent as it has affirmed consistently since 2012.[16] The current structure makes this spectrum available to a wide variety of users to support a wide variety of uses, including fixed and mobile wireless broadband, Internet of Things, and other industrial uses like smart grid applications. Importantly, WISPs rely

[13] 47 U.S.C. § 309(j)(3)-(4) (requiring the Commission to design a system of competitive bidding that promotes economic opportunity, "the efficient and intensive use of the electromagnetic spectrum," and prescribe regulations that "include performance requirements, such as appropriate deadlines and penalties for performance failures . . . [and] prevent stockpiling or warehousing").

[14] 47 U.S.C. §§ 301, 303, 309.

[15] *See* 47 C.F.R. § 27.14(h), (q).

[16] *See 3.5 GHz NPRM,* 27 FCC Rcd at 15595-99 ¶¶ 1-13; *Commission Seeks Comment on Licensing Models and Technical Requirements in the 3550-3650 MHz Band*, Public Notice, 28 FCC Rcd 15300, 15302-05 ¶¶ 4-6, 9 (2013); *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, WT Docket 12-354, Further Notice of Proposed Rulemaking, 29 FCC Rcd 4273, 4274-75 ¶¶ 1-3 (2014); *3.5 GHz R&O*, 30 FCC Rcd at 3961-63 ¶¶ 1-8; *3.5 GHz Order on Reconsideration*, 31 FCC Rcd at 5013-14 ¶¶ 1-8.

on this spectrum to deploy much needed broadband service to unserved and underserved communities.[17] Rural broadband deployment is a cornerstone of Chairman Pai's policy agenda;[18] the Chairman should reaffirm this commitment and reject T-Mobile's petition, which would destroy WISPs' opportunity to access this spectrum.[19]

T-Mobile's petition is also inconsistent with the heavily negotiated agreement with Federal users for shared access to the 3550-3650 MHz band. Federal users supported this effort precisely because it is a smart approach to spectrum policy that allows them to continue to operate and be protected, while developing and using new tools to enable commercial use. Furthermore, revisiting the technical rules will require a substantial amount of engineering analysis to reconsider the exclusion zones (which will grow significantly), ESC requirements, protections for FSS earth stations, and other technical requirements for the band. Taking such an action would delay the use of this band for years, minimize investment, and deter ongoing innovation.

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The market is ready for the 3.5 GHz band to come on line. The Commission can stimulate substantial economic activity – continued innovation and new investment – by dismissing the Petitions and expeditiously certifying SAS Administrators and ESC operators.

Respectfully submitted,
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[17] *See, e.g.,* Baicells Comments; Alsat Comments; REACH4 Comments.

[18] *See, e.g.,* Chairman Ajit Pai, Bridging the Digital Divide, FCC Blog (posted July 12, 2017), https://www.fcc.gov/news-events/blog/2017/07/13/bridging-digital-divide.

[19] *See, e.g.,* Baicells Comments; Alsat Comments; REACH4 Comments.